Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

October 29, 2004

10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328
		50-390

SEQUOYAH NUCLEAR PLANT (SQN) AND WATTS BAR NUCLEAR PLANT (WBN) - 60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTION," DATED AUGUST 30, 2004

This letter provides TVA's 60-day response to the subject GL regarding steam generator tube inspection practices and NRC's interpretation of the Technical Specification (TS) requirements in conjunction with 10 CFR Part 50, Appendix B. This GL requests information under 10 CFR 50.54(f) that describes tube inspection practices that include an assessment of whether the inspection practices ensure compliance with TS requirements in conjunction with 10 CFR Part 50, Appendix B.

A review of the steam generator inspection programs at SQN and WBN indicate, with the exception of SQN Unit 2, both plants have SG tube inspection methods that are consistent with the NRC's position as described in the GL. For SQN Unit 2, the SG tube inspection practices differ from the NRC position with respect to the inspections performed within the SG tubesheet region. Tubesheet inspections for Unit 2 are performed in accordance with plant TS requirements. Additional inspections are performed in the tubesheet region based on TVA assessments of potential degradation mechanisms. Some regions of the tubesheet

A115

have been excluded from the supplemental inspections based on technical criteria contained in WCAP-14797, Revision 1, "Generic W* Tube Plugging Criteria for Model 51 Series Steam Generator Tubesheet Region WEXTEX Expansions," dated February 1997. This WCAP provides the technical basis for alternate repair criteria that was approved by NRC for application at Diablo Canyon Power Plant in February 1999.

Sequoyah Unit 2 has applied the WCAP technical basis to limit the rotating coil inspection to eight inches below the top of the tubesheet, termed the W* length. The rotating coil is capable of detecting indications of any type that may be present along the W* length, and all indications detected have been repaired. Any tube degradation below the W* length does not contribute to burst or leakage. Since the alternate tube repair criteria is not contained in the SQN Unit 2 TS, TVA has entered this condition into TVA's corrective action program. As a corrective action, TVA plans to submit a license amendment for SQN Unit 2 to incorporate the W* basis within the Unit 2 TS.

Enclosure 1 provides TVA's responses for SQN Units 1 and 2. Enclosure 2 provides TVA responses for WBN Unit 1. In conjunction with the enclosed responses to the GL, TVA is submitting a W* TS change for SQN Unit 2 under separate letter.

There are no commitments contained in this letter.

If you have any questions about this response, please contact me at (423) 843-7170 or (423) 365-1824 or J. D. Smith at 843-6672.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 29th day of October 2004.

Sincerely,

P. L. Pace
Manager, SQN/WBN Site Licensing
and Industry Affairs

Enclosures
cc: See page 3

PLP:JDS:DVG:KTS
cc (Enclosures):
Mr. Robert J. Pascarelli, Senior Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop O-7A15
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2739

NRC Senior Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

NRC Senior Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303
Nashville, Tennessee 37243

ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTIONS," DATED AUGUST 30, 2004

NRC Request No. 1

Addressees should provide a description of the SG tube inspections performed at their plant during the last inspection. In addition, if they are not using SG tube inspection methods whose capabilities are consistent with the NRC's position, addressees should provide an assessment of how the tube inspections performed at their plant meet the inspection requirements of the TS in conjunction with Criteria IX and XI of 10 CFR Part 50, Appendix B, and corrective action taken in accordance with Appendix B, Criterion XVI. This assessment should also address whether the tube inspection practices are capable of detecting flaws of any type that may potentially be present along the length of the tube required to be inspected and that may exceed the applicable tube repair criteria.

SQN Unit 1 Response:

The SQN Unit 1 replacement SGs are Westinghouse/CENP Model 57AG with Inconel 690 thermally-treated ¾-inch Outside Diameter (OD), 0.043-inch wall tubing with hydraulic tubesheet expansions. Rows 1 through 16 have been heat treat stress relieved full length. The Westinghouse/CENP Model 57AG takes advantage of advanced tube support design resulting in a shorter tube-to-support contact length.

Attachment 1 provides a description of the SQN Unit 1 SG tube inspections performed during the SG tube baseline inspection in 2003. The first inservice inspection for the SQN Unit 1 replacement SGs will be October 2004.

The SG tube inspection methods are consistent with NRC's position described in the GL that "licensees are required under existing requirements (TS in conjunction with 10 CFR Part 50, Appendix B) to employ inspection techniques capable of detecting all flaw types which may be present at locations which are required to be inspected pursuant to the TS." The baseline inspections are required by TSs to provide baseline data for future inspections. Bobbin coil probes were used over the full length of each tube.

Rotating coil probes were used to collect additional baseline information.

SQN Unit 1 Response (continued):

Because SQN Unit 1 practice is consistent with NRC's position, the remainder of the requested information is not applicable to SQN Unit 1.

SQN Unit 2 Response:

The SQN Unit 2 SGs are Westinghouse Model 51 with Alloy 600 low temperature mill annealed 7/8-inch OD, 0.050-inch wall tubing with WEXTEX tubesheet expansions.

Attachment 2 provides a description of the SG tube inspections performed at SQN Unit 2 during the last inspection. Prior to each inspection, a degradation assessment, which includes operating experience, is performed to identify degradation mechanisms that may be present; and a technique validation assessment is performed to verify that the eddy current techniques are capable of detecting the degradation. For each tube location where degradation may be present, Attachment 2 includes the type of probe used for the inspection and the inspection scope.

The SQN Unit 2 SG tube inspection methods are not consistent with NRC's position with respect to the inspections performed within the tubesheet. Tubesheet inspections are performed using criteria from WCAP-14797, Revision 1, "Generic W* Tube Plugging Criteria for Model 51 Series Steam Generator Tubesheet Region WEXTEX Expansions," dated February 1997. This WCAP provides the technical basis for alternate repair criteria that was approved by NRC for application at Diablo Canyon Power Plant in February 1999. SQN Unit 2 has applied the WCAP technical basis to limit the rotating coil inspection extent to eight inches below the top of the tubesheet, termed the W* length. The rotating coil is capable of detecting indications of any type that may be present along the W* length, and all indications detected have been repaired. Indications below the W* length do not contribute to burst or leakage.

All other inspections are consistent with NRC's position in the GL.

ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTIONS," DATED AUGUST 30, 2004

NRC Request No. 2

If addressees conclude that full compliance with the TS in conjunction with Criteria IX, XI and XVI of 10 CFR Part 50, Appendix B, requires corrective actions, they should discuss their proposed corrective actions (e.g., changing inspection practices consistent with the NRC's position or submitting a TS amendment request with the associated safety basis for limiting the inspections) to achieve full compliance. If addressees choose to change their TS, the staff has included in the attachment suggested changes to the TS definitions for a tube inspection and for plugging limits to show what may be acceptable to the staff in cases where the tubes are expanded for the full depth of the tubesheet and where the extent of the inspection in the tubesheet region is limited.

SQN Unit 1 Response:

The SQN Unit 1 SG program is consistent with NRC's position in the GL in regard to TS in conjunction with Criteria IX, XI and XVI of 10 CFR Part 50, Appendix B. Therefore, this item is not applicable and a response is not required.

SQN Unit 2 Response:

SQN Unit 2 tubesheet inspections are not consistent with the staff's position in the GL; therefore, this issue has been entered into TVA's corrective action program. A TS change will be submitted as a corrective action to achieve consistency with NRC's position and to clarify the tubesheet inspection requirements. This submittal is not necessary for startup or for continued operation.

NRC Request No. 3

For plants where SG tube inspections have not been or are not being performed consistent with the NRC's position on the requirements in the TS in conjunction with Criteria IX, XI, and XVI of 10 CFR Part 50, Appendix B, the licensee should submit a safety assessment (i.e., a justification for continued operation based on maintaining tube structural and leakage integrity) that addresses any differences between the licensee's inspection

practices and those called for by the NRC's position. Safety assessments should be submitted for all areas of the tube required to be inspected by the TS where flaws have the potential to exist and inspection techniques capable of detecting these flaws are not being used, and should include the basis for not employing such inspection techniques. The assessment should include an evaluation of (1) whether the inspection practices rely on an acceptance standard (e.g., cracks located at least a minimum distance of x below the top of the tube sheet, even if these cracks cause complete severance of the tube) which is different from the TS acceptance standards (i.e., the tube plugging limits or repair criteria), and (2) whether the safety assessment constitutes a change to the "method of evaluation" (as defined in 10 CFR 50.59) for establishing the structural and leakage integrity of the joint. If the safety assessment constitutes a change to the method of evaluation under 10 CFR 50.59, the licensee should determine whether a license amendment is necessary pursuant to that regulation.

SQN Unit 1 Response:

The SQN Unit 1 SG tube inspections are consistent with NRC's position on the requirements in the TS in conjunction with Criteria IX, XI, and XVI of 10 CFR Part 50, Appendix B. Therefore, this item is not applicable and a response is not required.

SQN Unit 2 Response:

Attachment 3 is a safety assessment that addresses any differences between the SQN Unit 2 inspection practices and those called for by NRC's position. The safety assessment concludes that SG operability is maintained.

ENCLOSURE 1
ATTACHMENT 1

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTIONS," DATED AUGUST 30, 2004

Summary of SQN Unit 1 Replacement SG Baseline Inspection						
Item No.	Area	Probe used for inspection	Inspection Scope	Basis for Inspections	Pertinent SQN 1 Potential Degradation Mechanisms that probe is qualified for detecting	Degradation detected in baseline
1	Full Length of tubing	Bobbin	100% all SGs	TS 3/4.4.5	Support structure wear Manufacturing induced dents/dings Other anomalies caused by the manufacturing process	Yes (see note) Yes (see item 5) Yes (see item 6)
2	Hydraulic expansion transition	+Point	100% of hot leg TTS all SGs Minimum inspection extent is TTS +3 inches and TTS – 3 inches	Inspection performed to provide baseline data. No requirement for this inspection		No
3	Low Row U-bends	+Point	100% of Rows 1, 2, and 3	Inspection performed to provide baseline data. No requirement for this inspection		No
4	Support structures	+Point	50 random sample total in all four SGs	Inspection performed to familiarize analysts with the eddy current signal of the support structure and for baseline. No requirement for this inspection.		No
5	Dings	+Point	100% of dings >= 2 Volts	Inspection performed to provide baseline data. No requirement for this inspection.		No
6	Anomalous Bobbin Signals	+Point	100% of anomalous signals identified during the inspection	Inspection performed for clarification		One tube was preventively plugged due to geometry signal in the U-Bend

ENCLOSURE 1
ATTACHMENT 2

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTIONS," DATED AUGUST 30, 2004

Summary of Previous SQN Unit 2 SG Tube Inspection			
Item No.	Location	Probe used for inspection	Inspection Scope / Extent
1	Full Length of tubing	Bobbin	100% (Except Rows 1 and 4 U-bends)
2	WEXTEX TTS Region	+Point	100% of hot leg +2 inches to – 8 inches from top of tubesheet
3	Low Row U-bends (Rows 1-2)	+Point	100% of Rows 1 and 2
4	High Row U-bends (Rows 3 and greater	Array Probe or +Point	100% of Rows 3-11 and 20% sample of Rows 12-20 as an initial inspection. In 2 SGs, expanded to 100% of Rows 12-17.
5	Dents >= 2 volts at Supports	+Point	100% of hot leg dented supports and the upper most cold leg supports greater than or equal to 2 volts
6	< 2 Volt Dented TSP and free span dings	Bobbin	100%
7	>= 2 Volt free span dings	+Point	100% from HTS to H07, dings coincident with wear or manufacturing marks or U-Bend area

ENCLOSURE 1
ATTACHMENT 3

TENNESSEE VALLEY AUTHORITY (TVA)
SEQUOYAH NUCLEAR PLANT (SQN)
UNITS 1 AND 2

60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTIONS," DATED AUGUST 30, 2004

SAFETY ASSESSMENT FOR SQN UNIT 2 STEAM GENERATORS (SGs)

1.0 Background:

NRC Generic Letter (GL) 2004-01 states that it is the intent of the plant Technical Specifications (TSs) in conjunction with 10 CFR 50, Appendix B requirements that steam generator tube inspection methods be capable of detecting all forms of steam generator tube degradation. In particular, the GL indicates that tubing susceptible to circumferential cracking must be inspected using examination techniques capable of detecting circumferential cracking. Currently, eddy current examination with a rotating coil probe is the only non-destructive method capable of detecting circumferential tube cracking.

The current SQN Unit 2 SG inspection (TS 3/4.4.5) is written in terms of "eddy current probe" or "bobbin coil" or "bobbin voltage" (SQN TS 3/4.4.5.2.b.3, 3/4.4.5.2.d, 3/4.4.5.4.a.1, and 3/4.4.5.4.a.9.) that imply that tube inspections are to be performed using an eddy current bobbin coil examination technique. The SQN Unit 2 SG tubes are inspected using an eddy current bobbin probe over the entire length of the tubing to satisfy the TS requirements. To satisfy 10 CFR 50, Appendix B requirements, an assessment is performed to identify tubing areas susceptible to degradation which can not be reliably detected using the bobbin probe technology.

For SQN Unit 2, supplemental rotating coil inspections have been performed for the SQN Unit 2 SG tubes in the tubesheet region. Rotating coil inspections in the tubesheet region have been limited to the area just above the top of the tubesheet to 8 inches below the top of the tubesheet. This distance is based on analysis documented in Reference 1, which concludes that tube flaws below the 8 inch inspection limit pose no structural or leakage concern.

Inspections performed within the US pressurized water reactor fleet have identified circumferential SG tube flaws in the tubesheet region below the current SQN rotating coil inspection limit. These results have prompted NRC to emphasize to

SAFETY ASSESSMENT FOR SQN UNIT 2 SGs (continued)

licensee's that all tube areas susceptible to certain failure mechanisms must be inspected using techniques capable of detecting the resulting flaws. Any exclusions to the inspection requirements must be formally reviewed and approved by NRC. The technical basis for the exclusion of the tube areas below the present rotating coil inspection limit has not been formally approved by NRC for application to SQN Unit 2. Since the bobbin coil inspections of these tube areas will not detect circumferential cracking, this safety assessment shall conservatively assume that some tube degradation has occurred in the excluded rotating coil inspection region.

2.0 Safety and Critical Component (SCC) Function:

SQN Unit 2 has four Westinghouse Model 51 SGs with 3,388 Alloy 600 U-tubes each. SG tubes perform a number of safety functions and are considered safety-related. The tubes provide for heat transfer between the primary and secondary systems for the removal of residual heat from the primary system following shutdown. The tubes are also an integral part of the reactor coolant pressure boundary (RCPB) and, as such, are relied upon to maintain primary system pressure and inventory. As part of the RCPB, the tubes isolate the radioactive fission products in the primary coolant from the secondary system. Structural and leakage integrity is necessary for the tubes to perform their safety function. Structural integrity is defined as maintaining a safety factor of 3 against tube burst at a normal operating differential pressure and leakage integrity is defined as limiting leakage during postulated accidents such that 10 CFR 100 and General Design Criteria (GDC)-19 limits are maintained. Maintaining tube integrity ensures that the tubes are capable of performing their intended safety functions consistent with their licensing basis, including applicable regulatory requirements.

3.0 Evaluation of SCC Functionality

A SG tube pressure boundary failure impacts two design basis accidents. A failure of structural integrity results in a SG tube rupture (SGTR) event. The SGTR event is evaluated in SQN's Updated Final Safety Analysis Report (UFSAR), Section 15.4.3, "Steam Generator Tube Rupture" with the environmental consequences evaluated in UFSAR, Section 15.5.5 "Environmental Consequences of a Postulated Steam Generator Tube Rupture." The design basis SGTR event involves the complete severance of a single steam generator tube. Primary coolant is transferred to the secondary side of the affected steam generator where it is released directly to the atmosphere via the main steam safety valves. The release continues until the faulted steam generator is isolated by operator action. A defect in the SG tubing within the tubesheet region will not result in a complete tube severance. The additional strength provided by the tubesheet will prevent a catastrophic severance. If the flaw were to propagate through the tube wall, primary leakage would increase to detectible shutdown limits before a full tube severance occurs. If a tube experienced a 360 degree severance in the region in question, Reference 1 has confirmed that the resultant loads are not sufficient to pull the tube out of the tubesheet. Thus the limiting design basis failure remains bounding for postulated tube pressure boundary failures below the present rotating coil inspection limit.

The limiting condition for SG tube leakage integrity is a postulated main steam line break (MSLB) accident. The response to a MSLB is evaluated in the SQN UFSAR, Section 15.4.2.1, "Rupture of a Main Steam Line" and the environmental consequences are evaluated in Section 15.5.4, "Environmental Consequences of a Postulated Steam Line Break." For a MSLB outside containment upstream of the main steam isolation valves, the inventory of the faulted SG, along with a bounding amount of assumed primary-to-secondary SG leakage, is released to the atmosphere. Reference 1 evaluates the primary-to-secondary leakage in the tube-to-tubesheet expansion region for the limiting MSLB primary-to-secondary pressure differential.

Extrapolation of Figure 6.4-3 in Reference 1 to the tube region in question indicates that the leakage rate will be approximately 0.0001 gallons per minute (gpm) per tube. Previous rotating coil inspections of the tubesheet region within 8 inches of the top of the tubesheet have identified approximately 30 tubes with circumferential cracking. If this leakage rate is conservatively applied to 300 tubes with potential circumferential cracks in a given SG, the maximum leakage is approximately 0.03 gpm (or 44 gallons per day). This leakage is added to postulated leakage from other degradation and is within the allowable MSLB primary-to-secondary leakage established by FSAR Table 15.5.4-1. Thus the limiting design basis failure remains bounding for the worst-case postulated tube leakage below the present rotating coil inspection limit.

4.0 Extent of Condition:

This condition is limited to TVA's SQN Unit 2 original SGs manufactured with Alloy 600 tubing material (i.e., the tube material is susceptible to circumferential cracking in the tubesheet region based on service life and service conditions). The SQN Unit 1 replacement steam generators have Alloy 690 thermally treated tubing with hydraulic tubesheet expansions. Based on the tube material and the service life/service conditions, the Unit 1 tubes are not presently susceptible to circumferential cracking in the tubesheet region. Accordingly, the inspection condition is not applicable to SQN Unit 1 SGs.

5.0 Corrective Action:

TVA has entered this condition into TVA's corrective action program. As a corrective action, TVA plans to submit a license amendment for SQN Unit 2. The license amendment will document within SQN TSs the application of the W* alternate inspection/repair criteria to SQN's Unit 2 SGs.

6.0 Method of Evaluation

The GL requests that the safety assessment address whether the assessment constitutes a change to the "method of evaluation" (as defined in 10 CFR 50.59) for establishing the structural and leakage integrity of the joint. If the safety assessment constitutes a change to the method of evaluation under 10 CFR 50.59, the licensee should determine whether a license amendment is necessary.

In response to the GL request, TVA has reviewed the NRC's position and has concluded that the analysis approach does not redefine the ASME pressure boundary and is not a change in the method of evaluation per 10 CFR 50.59 based on the following:

1) TVA does not consider the assessment approach, or the described inspection program scope, as redefining the ASME Section III pressure boundary. The selection of NDE techniques or extent of inspection does not, by itself, define the limits of the ASME pressure boundary. For example, the GL indicates that current TSs include language that exclude sections of cold leg tubing from inspection extent. The GL also states that the selection of NDE techniques is not specified in the TSs, but is governed by the provisions of 10 CFR Part 50 Appendix B, and as such, are not used to define pressure boundary limits. From an integrity assessment perspective, neither past NRC approval of Alternate Repair Criteria (ARCs) nor the suggested changes to the TSs provided in the GL address or indicate that the basis for approval is a redefinition of the pressure boundary.
2) The NRC endorsed guidance for 10 CFR 50.59 evaluations (NEI 96-07) defines "method of evaluation" and the associated 10 CFR 50.59 screening protocol. Section 4.3.8 of NEI 96-07 states that the methods of evaluation that are not described, outlined or summarized in the UFSAR are excluded from departure consideration. The tube integrity assessments employed by TVA consider the entire length of pressure boundary tubing. Undetected flaws and their impact on tube integrity are addressed. The assessments are consistent with industry standards. The analyses and analysis parameters are not described, outlined or summarized in ASME Section III, ASME Section XI or in the UFSAR, and therefore would not

constitute a change/departure in the method of evaluation per 10 CFR 50.59.

3) Integrity assessments are performed in accordance with the provisions of the EPRI *Steam Generator Integrity Assessment Guidelines* and the structural and accident leakage integrity performance criteria specified in NEI 97-06 and NUREG-1022. This ensures margins of safety are consistent with the ASME Section III Code and Regulatory Guide 1.121 and that any potential accident leakage is within safety analysis limits.

Based on the above, TVA concludes that the assessment does not constitute a change to the "method of evaluation" as described in 10 CFR 50.59. TVA does recognize that the SG inspections within the tubesheet region for SQN Unit 2 are not consistent with the GL position. Accordingly, TVA plans to submit a licensing amendment change as previously discussed in response to Question 2.

7.0 References:

1. WCAP-14797, Revision 01, "Generic W* Tube Plugging Criteria for 51 Series Steam Generator Tubesheet Region WEXTEX Expansions," dated February 1997.

2. NRC Generic Letter 2004-001, "Requirements for Steam Generator Tube Inspections", dated August 30, 2004.

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY (TVA)
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1

60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTIONS," DATED AUGUST 30, 2004

NRC Request No. 1

Addressees should provide a description of the SG tube inspections performed at their plant during the last inspection. In addition, if they are not using SG tube inspection methods whose capabilities are consistent with the NRC's position, addressees should provide an assessment of how the tube inspections performed at their plant meet the inspection requirements of the TS in conjunction with Criteria IX and XI of 10 CFR Part 50, Appendix B, and corrective action taken in accordance with Appendix B, Criterion XVI. This assessment should also address whether the tube inspection practices are capable of detecting flaws of any type that may potentially be present along the length of the tube required to be inspected and that may exceed the applicable tube repair criteria.

WBN Unit 1 Response:

WBN Unit 1 SGs are Westinghouse Model D3 with Alloy 600 low temperature mill annealed ¾-inch Outside Diameter (OD), 0.043-inch wall tubing with full-depth hard-rolled tubesheet expansions.

Attachment 1 provides a description of the SG tube inspections performed at WBN Unit 1 during the last inspection. Prior to each inspection, a degradation assessment, which includes operating experience, is performed to identify degradation mechanisms that may be present, and a technique validation assessment is performed to verify that eddy current techniques are capable of detecting the degradation. For each tube location where degradation may be present, Attachment 1 includes the type of probe used for the inspection and the inspection scope.

The WBN Unit 1 SG tube inspection methods are consistent with NRC's position that "licensees are required under existing

requirements (TS in conjunction with 10 CFR Part 50, Appendix B) to employ inspection techniques capable of detecting all flaw types which may be present at locations which are required to be inspected pursuant to the TS." Therefore, the remainder of the requested information is not applicable to WBN Unit 1.

NRC Request No. 2

If addressees conclude that full compliance with the TS in conjunction with Criteria IX, XI and XVI of 10 CFR Part 50, Appendix B, requires corrective actions, they should discuss their proposed corrective actions (e.g., changing inspection practices consistent with the NRC's position or submitting a TS amendment request with the associated safety basis for limiting the inspections) to achieve full compliance. If addressees choose to change their TS, the staff has included in the attachment suggested changes to the TS definitions for a tube inspection and for plugging limits to show what may be acceptable to the staff in cases where the tubes are expanded for the full depth of the tubesheet and where the extent of the inspection in the tubesheet region is limited.

WBN Unit 1 Response:

WBN Unit 1 SG tube inspection practice is consistent with NRC's position. Therefore, the remainder of the requested information is not applicable.

NRC Request No. 3

For plants where SG tube inspections have not been or are not being performed consistent with the NRC's position on the requirements in the TS in conjunction with Criteria IX, XI, and XVI of 10 CFR Part 50, Appendix B, the licensee should submit a safety assessment (i.e., a justification for continued

NRC Request No. 3 (Continued)

operation based on maintaining tube structural and leakage integrity) that addresses any differences between the licensee's inspection practices and those called for by the NRC's position. Safety assessments should be submitted for all areas of the tube required to be inspected by the TS where flaws have the potential to exist and inspection techniques capable of detecting these flaws are not being used, and should include the basis for not employing such inspection techniques. The assessment should include an evaluation of (1) whether the inspection practices rely on an acceptance standard (e.g., cracks located at least a minimum distance of x below the top of the tube sheet, even if these cracks cause complete severance of the tube) which is different from the TS acceptance standards (i.e., the tube plugging limits or repair criteria), and (2) whether the safety assessment constitutes a change to the "method of evaluation" (as defined in 10 CFR 50.59) for establishing the structural and leakage integrity of the joint. If the safety assessment constitutes a change to the method of evaluation under 10 CFR 50.59, the licensee should determine whether a license amendment is necessary pursuant to that regulation.

WBN Unit 1 Response:

The WBN Unit 1 inspection practice is consistent with the NRC position. Therefore this item is not applicable and a response is not required.

ENCLOSURE 2
ATTACHMENT 1

TENNESSEE VALLEY AUTHORITY (TVA)
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1

60-DAY RESPONSE TO GENERIC LETTER (GL) 2004-01, "REQUIREMENTS FOR STEAM GENERATOR (SG) TUBE INSPECTIONS," DATED AUGUST 30, 2004

Summary of Previous WBN Unit 1 SG Tube Inspection			
Item	Location	Probe used for inspection	Inspection Scope / Extent
1	Full Length of tubing	Bobbin	100% (Except Rows 1 and 2 U-bends)
2	Hardrolled Tubesheet Region	+Point	100% of hot leg +2 inches to – 2 inches from top of tubesheet and 20% sample of cold leg tubesheet (F* ARC licensed for WBN U1)
3	Low Row U-bends (Rows 1-2)	+Point	100% of Rows 1 and 2
4	High Row U-bends (Rows 3 and greater	Array Probe	100% of Rows 5-10 and 20% sample of Rows 17-23 as an initial inspection.
5	Dents >= 2 Volts at Supports	+Point	100% of hot leg dented supports and the upper most cold leg supports greater than or equal to 2 Volts
6	< 2 Volt Dented TSP and free span dings	Bobbin	100%
7	>= 2 Volt free span dings	+Point	20% of freespan dings between HTS and H02 and 20% of feespan dings between CTS and C10